



How to Start and Organize a VEX IQ Challenge Team



Introduction

Thank you for your interest in providing students with an opportunity to experience the inspiration, excitement, and learning that comes from participating in the VEX IQ Challenge. You don't have to be an engineer or have technical skills to start and organize a VEX IQ Challenge team. Just use the following resources to help your team get started in enjoying an amazing learning experience in the VEX IQ Challenge.

Getting Started

Register your team: Visit www.robotevents.com/robot-competitions/vex-iq-challenge and click on the "Register a Team!" button to be guided through the team registration process. The team registration fee is \$150 for the first team in your school or organization and \$100 for each additional team in the same school or organization. Included with your paid team registration fee is a Welcome Kit, which contains helpful information and resources to support your team's participation in the VEX IQ Challenge.

Use the free curriculum: The free, standards-matching VEX IQ curriculum will help you use the VEX IQ platform to bring powerful STEM lessons to life. Flexible units of instruction will engage elementary and middle school students in lessons that are aligned to the Common Core, Next Generation Science, and Technological Literacy standards. For curriculum details, please visit: www.vexrobotics.com/vexiq/education/iq-curriculum.

Download instructional videos, user guides, firmware updates, and resources: Visit this site to download a variety of valuable VEX IQ resources at no cost: www.vexrobotics.com/vexiq/explore

Learn the Robot Game rules: Your team should learn about the robot game rules and the Teamwork, Programming Skills, and Robot Skills Challenges by reviewing the Game Manual on the VEX IQ Current Challenge site: www.roboticseducation.org/vex-iq-challenge/viq-current-game/.

Explore the STEM Research Project: Your team is challenged to explore a topic of interest related to the STEM theme for the season. Your students will then develop and organize research on their topic and share their findings in a four-minute video presentation to event judges. For more details on the STEM Research Project, please visit: www.roboticseducation.org/vex-iq-challenge/viq-current-game/.

Register for events: Register to participate in one or more events during the season. Details of scheduled events are updated throughout the season on www.robotevents.com. Teams must pay their team registration fee for the season prior to registering to participate in a VEX IQ Challenge event. VEX IQ event registration fees vary, but usually range from free scrimmages to \$25-\$75 per team for qualifying events.

Join or form a League: Groups of teams can play multiple times in convenient locations. For League Play details, visit: www.roboticseducation.org/vex-iq-challenge/viq-teams/.

Participate in the Forum: For answers to general, as well as technical questions, and to collaborate with the VEX IQ community, visit www.vexiqforum.com/. Registration for the VEX IQ forum is free.

Equipment Your Team Will Need

Your team will need a VEX IQ robot kit and access to a computer and the Internet to utilize the free online curriculum and programming resources. The number of robots that your team will require depends on the number of students, the hands-on learning experience you plan to facilitate, and your available resources. The VEX IQ Super Kit, at a cost of \$329.99, includes a handheld VEX controller, sensors, motors, hundreds of components to build one great VEX IQ robot, and a storage bin and tray to organize materials for use over multiple seasons. Additional VEX IQ components are available for purchase separately, if your team chooses to add to their design and building options. A portable game field, which can be re-used each season for all of the game challenges, is available as a half field for \$99.99 or a whole 4' x 8' field for \$199.98. Game elements for the new robot game each season are available for purchase after VEX Worlds in late April. You may purchase all or part of the robot game elements or make your own! For VEX IQ product details, visit: www.vexrobotics.com/vexiq/products.

Develop Your Team

There is no maximum to the number of students who can participate on a VEX IQ team, but a minimum of two student drivers is required to participate in Teamwork and Robot Skills Challenge matches. Keep the amount of your available resources and space in mind when developing your team, since students will benefit most from a well-supported hands-on learning experience. If your student interest exceeds available resources, consider recruiting additional support and space to coordinate multiple teams. The registration fee for additional teams in the same school or organization is discounted to only \$100 per team.

Community or industry partners and the families of your students can provide invaluable support to your efforts. Share with the students and their families the importance of their full participation in meetings and events, in order to support the development of a positive and effective team experience.

Plan Your Schedule

A meeting schedule can help organize your team for the season. Create a schedule that best meets your team's availability, needs, objectives, and resources. For younger students, it may be helpful to limit meeting length to not more than two hours. As events approach, your team may decide to meet more frequently, in order to better prepare for their participation in the VEX IQ Challenge.

Plan Your Team Meetings

During the initial meetings, it is helpful for your team to develop a list of goals and a timeline for accomplishing these goals. Encourage your team to include this information in their Engineering Notebook. Meetings can be structured to accomplish your team's goals in the planned timeline. Your team can make and document adjustments to their goals and/or timeline throughout the season. Using a planning process supports the development of invaluable organizational, time management, and project management skills in your students.

Assign Team Roles

Your team can be more productive if everyone is assigned a role. These roles can be rotated, so that team members can benefit from the full program experience. Choose roles that best fit the interests, skills, and needs of your students. Also, assign backup roles, in order to sustain your team when an illness or schedule conflict occurs. Here are just a few suggestions:

- Robot Designers
- Robot Programmers
- Engineering Notebook Manager
- STEM Project Researchers
- Robot Builders
- Robot Drivers
- STEM Research Project Manager
- Photographer/Videographer

Develop a Team Identity

Developing your team identity can be a valuable, fun part of the teambuilding process. Your team members should use their creativity to establish their own unique identity. Developing a team identity can include choosing a team name, creating displays for your pit (practice area) space, designing a team shirt, or creating a team cheer or song. These activities need not cost a lot to foster great teamwork, team spirit, and a strong sense of community.

Brainstorm

After your team learns more about the season's challenge, the members will be very excited to build the robot! Encourage your team to use that energy and excitement, plus their knowledge and skills, to first brainstorm their game strategy and the designs that can best be used to solve the VEX IQ Challenge. Your team can investigate various brainstorming processes and choose the one that works best for them.

Design the Robot

Before your team designs their robot, make sure that they carefully review the Game Manual, Inspection Checklist, and the Design Award rubric on the "VEX IQ Teams" site: www.roboticseducation.org/vex-iq-challenge/viq-teams/. Your team can also use a free tool, SnapCAD, to design a virtual model and test out their ideas before they start to physically build their robot. For details on SnapCAD, please visit: www.vexrobotics.com/vexiq/software/snapcad. Your team's robot design will likely change and evolve over the season, as their learning experiences progress.

Document the Design Process

Your team can use an Engineering Notebook to record robot design changes, their outcomes, and the learning involved in each change. One Engineering Notebook is provided in the Welcome Kit for the first team registration. Additional notebooks can be purchased from VEX Robotics or design your own!

Build, Test, and Improve the Robot

After adequate brainstorming, research, and design, your team can start building a robot to solve the VEX IQ Challenge. Your team can then test and make improvements to their robot design. Only one change should be made at a time, so that your team can evaluate and document the impact of each change in their Engineering Notebook. Unexpected results can provide an opportunity for your team members to collaborate and use their critical thinking and problem-solving skills to improve their robot's performance.

Programming the Robot

In addition to driving the robot to solve challenges, your team can program the robot to complete tasks by using programming software and sensors. Your team can then enjoy testing their skills at an event in the Programming Skills Challenge and documenting their learning process in the Engineering Notebook. For more information on the programming software options for the VEX IQ robot, visit: www.vexrobotics.com/vexiq/software/programming.

Research and Present a STEM Research Project

Your team can develop a better understanding of the VEX IQ Challenge by exploring the STEM Research Project theme for the season and discovering a topic of interest to research and share with others. More details, including suggested steps for teams to follow, are included in the STEM Research Project document on the VEX IQ Current Challenge site: www.roboticseducation.org/vex-iq-challenge/viq-current-game/.

Get Ready for an Event

After your team has designed and built a robot and recorded their learning in an Engineering Notebook, it's time to get ready for an event. You and your team may not feel ready for the event, especially if it's your first one, but participate anyway! The invaluable lessons that your team will learn and the opportunities to share with other teams aren't to be missed!

Here are a few suggestions to help you get ready:

- Register for an event at: www.robotevents.com/robot-competitions/vex-iq-challenge. The event site will include valuable details to help you plan for your team's participation.
- Collect signed consent forms from all team members, including students and adults, to submit to the event check-in desk. Download the form from this site: www.roboticseducation.org/vex-iq-challenge/viq-teams/
- Review the Game Manual and Inspection Checklist, so that your team has plenty of time to make adjustments to their robot, if needed. Visit: www.roboticseducation.org/vex-iq-challenge/viq-current-game/.
- Visit the VEX IQ forum for game updates and answers to your questions: www.vexiqforum.com/
- Since the schedule for most events starts early in the morning, plan to collect these materials ahead of time: robot, signed consent forms, snacks, water, spare parts, batteries, chargers, programming cable, laptop computer, Engineering Notebook, project presentation materials, extension cord, power strip, pit decorations and/or optional giveaways, and highlighters and clipboards for the robot match schedule.
- Prepare your students to share their learning experiences with the judges and other event participants. Events provide a fun opportunity for students to share their knowledge, skills, and team spirit.
- For more details, refer to the "Tips for Preparing for and Attending VEX IQ Challenge Events" document at: www.roboticseducation.org/vex-iq-challenge/viq-teams/.

What to Expect at an Event

Check www.robotevents.com/robot-competitions/vex-iq-challenge for the schedule for your event. Here is a sample schedule, which will vary for each event.

Event days are busy and fast-paced. Here are a few tips to help teams enjoy the day:

- Make sure your team is well rested and well hydrated. Bring snacks that are non-perishable.
- Dress comfortably and wear closed-toed shoes. Wearing team shirts or costumes adds to the fun.
- Ensure your robot is charged and ready for action!
- Make sure all equipment and parts are labeled with your team/contact name or team number.
- Arrive a few minutes early, if possible, and become familiar with the event venue.
- Ensure that an adult associated with the team supervises the students throughout the event.
- Do not leave personal or valuable items, such as your computer, unattended at the event.
- Review the event agenda and match schedule. Make sure the students know their team number.
- Assign a timekeeper, who ensures the team arrives on time for their matches and presentation.
- Encourage your team to interact and share with other teams to enhance their learning experience.
- Demonstrate courtesy and respect to the dedicated event staff and event participants at all times.
- Offer positive support and encouragement throughout the day.
- Share your team spirit! HAVE FUN!

Sample Schedule	
8:00 a.m.	Team Check-In, Robot Inspection, Submit Notebooks, Judging
9:00 a.m.	Driver's Meeting for All Team Members
9:30 a.m.-12:00 p.m.	Robot Challenge Matches and Judging
12:00-1:00 p.m.	Lunch
1:00-2:30 p.m.	Robot Challenge Matches and Judging
2:30-3:00 p.m.	Finals Matches and Awards
3:30 p.m.	Practice Area (Pits) Close

Celebrate Your Team's Hard Work

After each event, be sure to celebrate your team's accomplishments. Every team has room to grow and improve, but the experience and knowledge that your team gains from participating in an event is worthy of a great celebration. Consider inviting sponsors, teachers, and community members to a post-event celebration. This is an excellent opportunity for your team to share what they have learned, plan their participation in more great VEX IQ learning experiences, and develop community support for their efforts.

VEX IQ Challenge Resources

The following resources are available to support your efforts throughout the season:

- **VEX IQ Teams Page:** www.roboticseducation.org/vex-iq-challenge/viq-teams/
- **VEX IQ Robot & Project Challenge:** www.roboticseducation.org/vex-iq-challenge/viq-current-game/
- **VEX IQ Team and Event Registration:** www.robotevents.com/robot-competitions/vex-iq-challenge
- **VEX IQ Products:** www.vexrobotics.com/vexiq/products
- **Explore VEX IQ Resources & Downloads:** www.vexrobotics.com/vexiq/explore
- **VEX IQ Forum:** www.vexiqforum.com/
- **VEX Technical Support:** support@vexrobotics.com
- **REC Regional Support Manager Contact:** www.roboticseducation.org/contact-us/